

Safety and Shipping Review 2013

An annual review of trends and developments in shipping losses and safety – January 2013

Shipping Losses

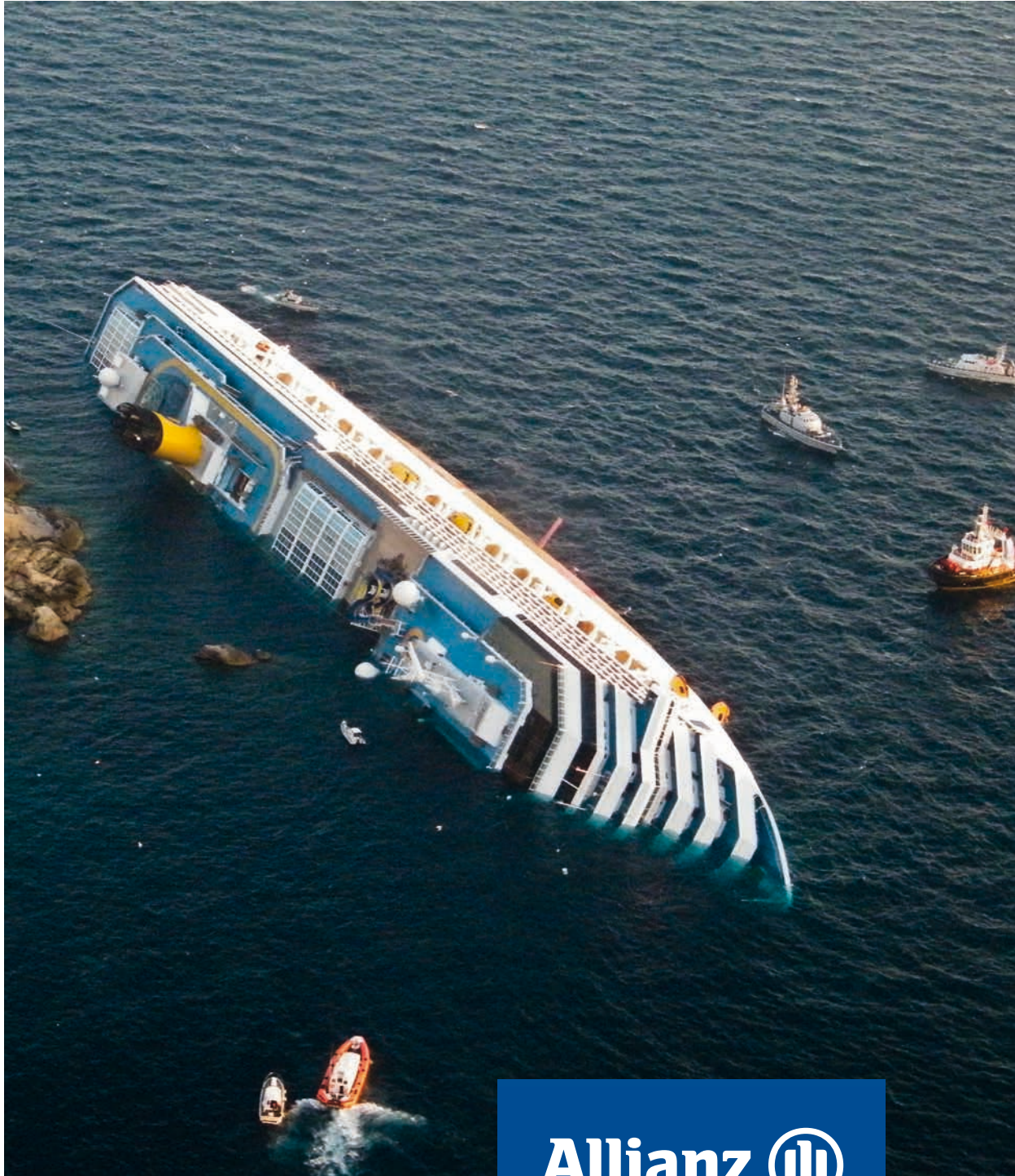
World losses in review: by location, type and cause

2012 in Review

Trends and developments affecting shipping safety

Future challenges to safety

Looking ahead, some topics to watch



Costa Concordia lies grounded off Isola del Giglio, Italy, in January 2012. (Photo: PA.)



Summary

- Shipping losses continue downward trend
- 27% decrease in 2012 on previous 10 year average
- Losses centered on South China and South East Asia region
- Foundering most common cause of loss
- Despite industry initiatives, challenges remain

In 2012, two high profile maritime incidents pushed shipping safety into the public eye once more with the loss of the *Costa Concordia* off Italy in January followed in February by that of the *Rabaul Queen* ferry, off Papua New Guinea. Both events caused a tragic loss of life. However, while these incidents have dominated public ship safety discussions, statistics reveal that reported total losses in shipping for 2012 continued a long term downward trend, with a total of 106 vessels recorded as losses in the 12 months to 25 November 2012. While this marks an increase from the previous 2010-11 period (91 losses), this figure is down from the 2001-10 average of 146 vessels per year.

Due to the concentration of commercial shipping in geographical areas, nearly two out of three of those total losses (58%) occurred in one of four maritime regions: South China, Indo China, Indonesia and the Philippines (with 30 vessels lost, twice as many as any other area); East Mediterranean and the Black Sea; Japan, Korea and North China; and the British Isles, North Sea, English Channel, and the Bay of Biscay. The most common cause of losses in the past year was foundering (sinking or submerging) – responsible for nearly half of losses (49%) – followed by wrecking/running aground (22%). Collisions involving vessels accounted for a relatively small number of losses (6%), even allowing for late reporting of losses which may still come to light.

These figures illustrate that the maritime industry has continued its commitment to improving maritime safety, developing safety initiatives and regulations throughout the year, both reactively and proactively. Spurred on by major accidents, passenger vessels have been in focus with initiatives from the International Maritime Organisation as well as from the cruise ship industry itself. These have addressed safety concerns in cruise vessels and focused on the continuing problem of losses from domestic ferry incidents in the Pacific Islands region.

Other long standing safety initiatives which were under way before 2012 have also progressed. For example, the carriage by vessels of Electronic Chart Display and Information Systems (ECDIS) became mandatory from July 2012, a move which should greatly improve visual displays for navigation, but one which has also attracted criticism in respect of inadequate training and integration into other systems. Other systems and processes, such as Vessel Tracking Systems (VTS) and International Safety Management Code implementation, have also contributed to declining accidents.

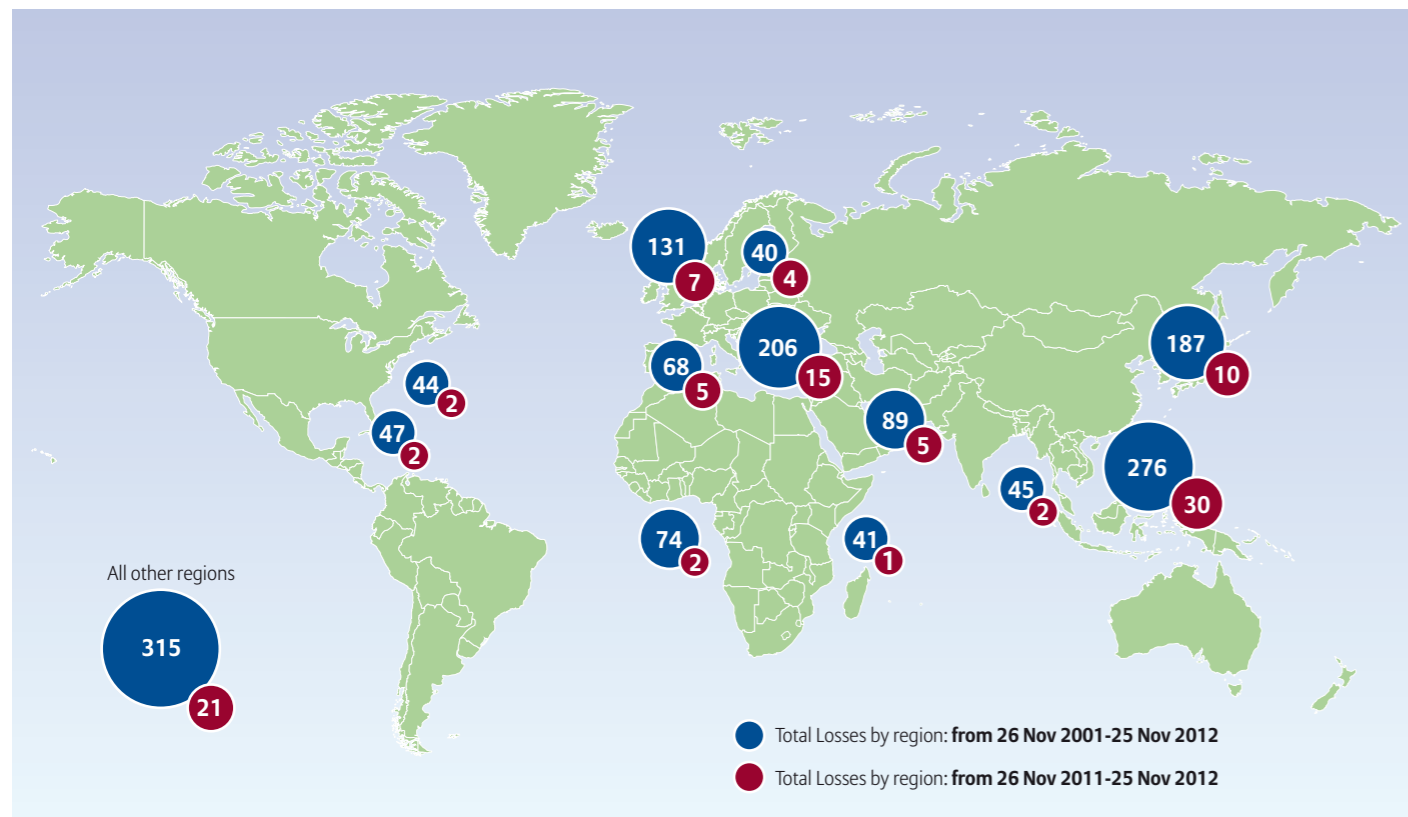
Additionally, last year's ratification and this year's entry into force of the Maritime Labour Convention 2006 is also expected to help reduce causes of human error in accidents through addressing labor conditions on board. However, commentators point out there are many remaining challenges such as economic pressures and under-investment in crews and maintenance which are unlikely to reduce in today's increasingly tough economic climate.

Introduction

This review focuses on key developments in maritime safety during 2012, and analyzes reported shipping losses (of over 100 gross tons) during the 12 months prior to 25 November 2012. It builds on initial research published in January 2012 by Allianz Global Corporate & Specialty (AGCS) and the Seafarers' International Research Centre of Cardiff University in the UK, entitled "Safety & Shipping 1912-2012: From *Titanic* to *Costa Concordia*", available at www.agcs.allianz.com.

2012: Losses in Focus

Total Losses by Region: 2001-2012 and 2011-2012



Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

12 key shipping regions contain **77%** of losses



Total Losses by region: from 26 Nov 2001-25 Nov 2012

2001-2012: Worldwide, in the 11-year period from 26 November 2001 to 25 November 2012, there were 1,563 total reported losses. 77% of losses were clustered in 12 key regions, where sea traffic is concentrated, and 50% of losses came from four 'hot spot' areas: South China, Indo China, Indonesia and the Philippines; East Mediterranean and the Black Sea; Japan, Korea and North China; and the British Isles, North Sea, English Channel, and the Bay of Biscay.

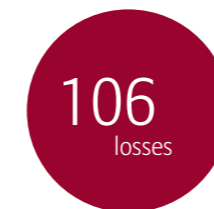
S. China, Indo China, Indonesia & Philippines	276
East Mediterranean & Black Sea	206
Japan, Korea and North China	187
British Isles, N. Sea, Eng. Channel, Bay of Biscay	131
Arabian Gulf and approaches	89
West African coast	74
West Mediterranean	68
West Indies	47
Bay of Bengal	45
United States eastern seaboard	44
East African Coast	41
Baltic	40
Others	315
Total Losses by Region	1,563

Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Total Losses by region: from 26 Nov 2011-25 Nov 2012

2012: In the 12 months to 25 November 2012, we have identified 106 reported total losses worldwide: a rate of just under nine vessels per month. In line with previous years, these were clustered into busy sea lanes, with seas around South China/Indo China/Indonesia/Philippines being responsible for over twice as many losses (30) as any other region.

Reported losses for the 12 months up to 25 November 2012 currently run at **nine vessels** per month.



S. China, Indo China, Indonesia & Philippines	30
East Mediterranean & Black Sea	15
Japan, Korea and North China	10
British Isles, N. Sea, Eng. Channel, Bay of Biscay	7
Arabian Gulf and approaches	5
West Mediterranean	5
Baltic	4
Bay of Bengal	2
United States eastern seaboard	2
West African coast	2
West Indies	2
East Africa	1
Others	21
Total Losses by Region	106

Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Major Losses: 2012

Largest ships lost and all passenger vessel losses

Vessels lost in 12 months to 25 Nov 2012

(including largest ten vessels and all major passenger vessel losses) – showing location of loss and type of vessel

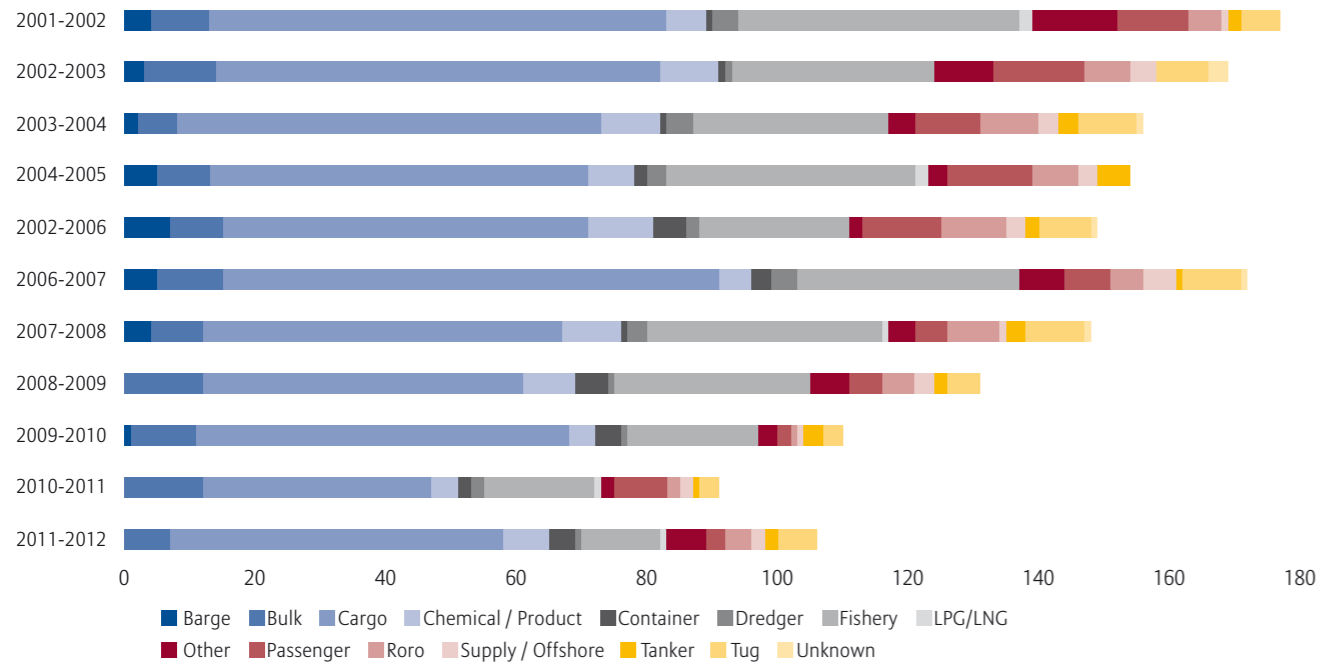


Marks show the location of total losses reported between 26 Nov 2011 and 25 Nov 2012, with the largest ten losses and all passenger losses highlighted by ship type.

- Hibiscus**
11 Dec 2011
Damaged in collision (later scrapped). No fatalities.
18502 GT
- Jiajiaxin 1**
20 Aug 2012
Damaged in collision, later scrapped. No fatalities.
20250 GT
- Saraswati**
11 May 2012
Fire off Suralata, later sank. Eight crew missing.
20643 GT
- Bunga Alpinia**
26 July 2012
Fire while moored; later scrapped. Five fatalities.
25709 GT
- Ocean Breeze**
16 Aug 2012
Dragged anchor, ran aground. No fatalities.
30067 GT
- Vinalines Queen**
25 Dec 2011
Sank after reportedly listing. 22 missing.
31247 GT
- Bareli**
15 Mar 2012
Grounded off Fuqing. No fatalities
35881 GT
- Prem Divya**
30 Dec 2011
Explosion while under repair; later scrapped.
Three fatalities.
57950 GT
- Pacific Carrier**
28 Aug 2012
Dragged anchor in high winds ; ran aground.
No fatalities.
77458 GT
- Costa Concordia**
13 Jan 2012
Grounded off Giglio Island, Italy. 32 fatalities/missing.
114147 GT
- Yogi**
17 Feb 2012
Yacht: drifting then sank. No fatalities.
1028 GT
- Rabaul Queen**
2 Feb 2012
Ferry: capsized and sank. 110+ fatalities/missing.
259 GT

Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Losses by type of vessel, 2001-2012



The rate of losses declined over the period in general, with cargo and fishery vessels making up 61% of losses, despite making up approximately 45% of the average world fleet over this period. Passenger vessel losses such as that of the mega-yacht Yogi (right) which sank in the Mediterranean in February 2012, make up a small number of the overall shipping losses, despite media attention.



Passenger vessel losses make up only a small percentage of total losses (Photo: PA)

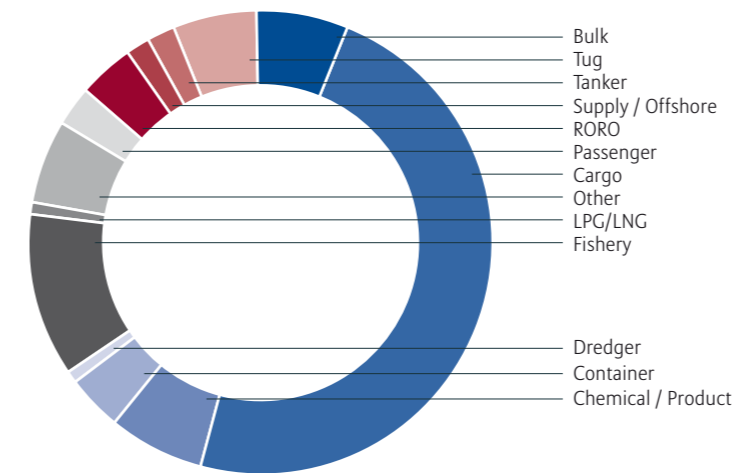
Period	Barge	Bulk	Cargo	Chemical / Product	Container	Dredger	Fishery	LPG/LNG	Other	Passenger	RORO	Supply / Offshore	Tanker	Tug	Unknown	Total
2001-2002	4	9	70	6	1	4	43	2	13	11	5	1	2	6		177
2002-2003	3	11	68	9	1	1	31		9	14	7		4	8	3	169
2003-2004	2	6	65	9	1	4	30		4	10	9	3	3	9	1	156
2004-2005	5	8	58	7	2	3	38	2	3	13	7	3		5		154
2005-2006	7	8	56	10	5	2	23		2	12	10	3	2	8	1	149
2006-2007	5	10	76	5	3	4	34		7	7	5	5	1	9	1	172
2007-2008	4	8	55	9	1	3	36	1	4	5	8	1	3	9	1	148
2008-2009		12	49	8	5	1	30		6	5	5	3	2	5		131
2009-2010	1	10	57	4	4	1	20		3	2	1	1	3	3		110
2010-2011		12	35	4	2	2	17	1	2	8	2	2	1	3		91
2011-2012		7	51	7	4	1	12	1	6	3	4	2	2	6		106
Total	31	101	640	78	29	26	314	7	59	90	63	24	23	71	7	1563

Note: Each period runs from 26 Nov to 25 Nov the following year.

Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Losses by type of vessel

12 months to 25 Nov 2012

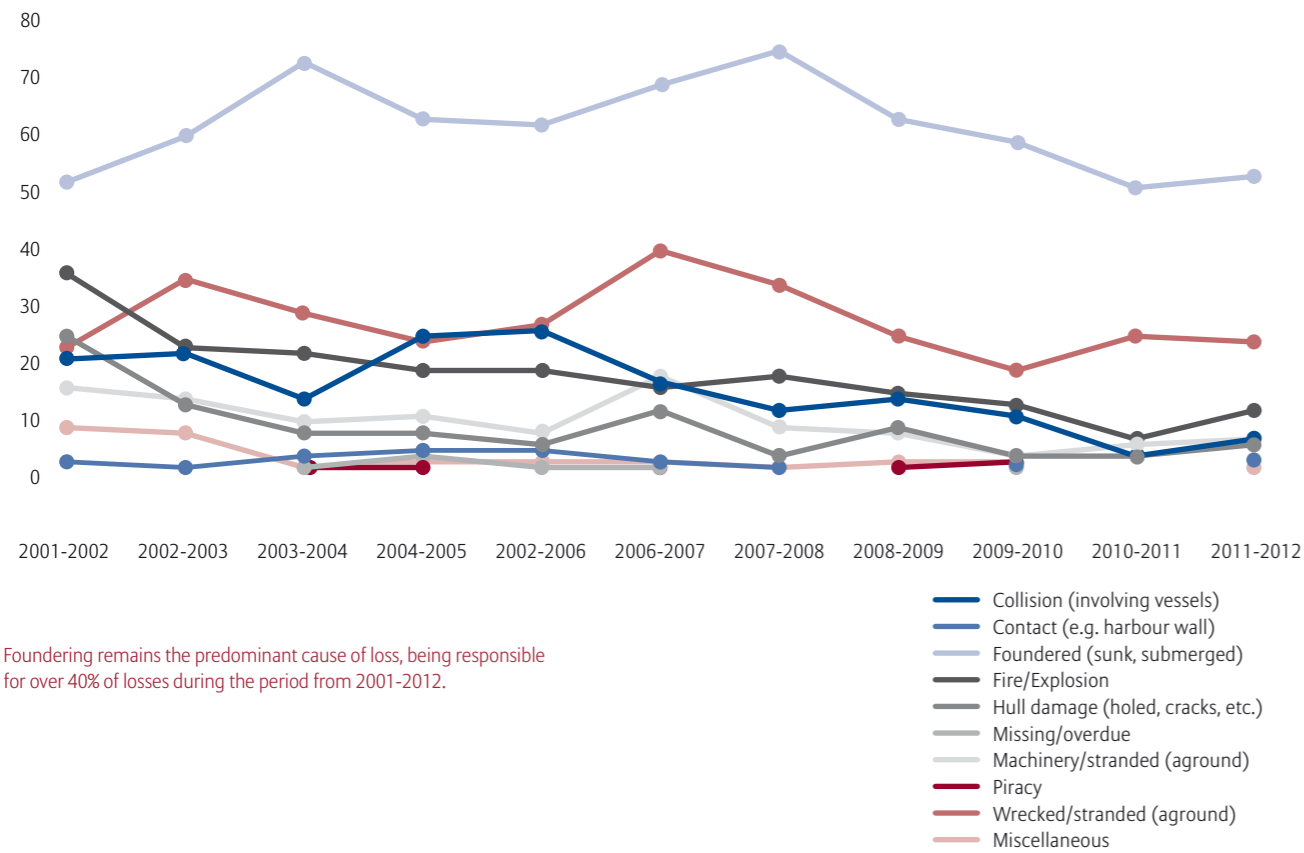


Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Bulk	7
Cargo	51
Chemical / Product	7
Container	4
Dredger	1
Fishery	12
LPG/LNG	1
Other	6
Passenger	3
RORO	4
Supply/ Offshore	2
Tanker	2
Tug	6
Total	106

Cargo and fishery vessel losses dominate the most recent data for 12 months to 25 November 2012, at 59% of all losses.

Causes of loss, 2001-2012



	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2011 - 2012	Grand Total
Collision (involving vessels)	20	21	13	24	25	16	11	13	10	3	6	162
Contact (e.g. harbour wall)	2	1	3	4	4	2	1		1		2	20
Foundered (sunk, submerged)	51	59	72	62	61	68	74	62	58	50	52	669
Fire/explosion	35	22	21	18	18	15	17	14	12	6	11	189
Hull damage (holed, cracks, etc.)	24	12	7	7	5	11	3	8	3	3	5	88
Missing/overdue			1	3	1	1			1			7
Machinery damage/failure	15	13	9	10	7	17	8	7	3	5	6	100
Piracy			1	1		1		1	2			6
Wrecked/stranded (aground)	22	34	28	23	26	39	33	24	18	24	23	294
Miscellaneous	8	7	1	2	2	2	1	2	2		1	28
Grand Total	177	169	156	154	149	172	148	131	110	91	106	1,563

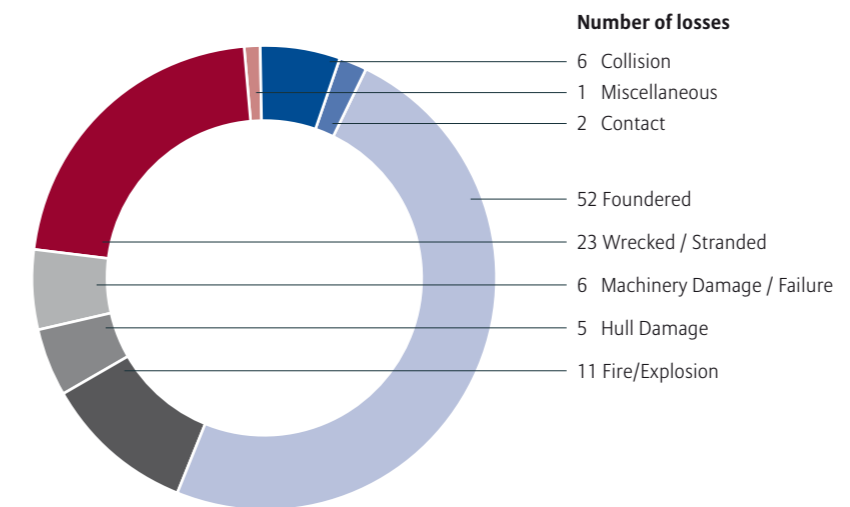
Note: Each period runs from 26 Nov to 25 Nov the following year.

Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

Causes of Loss

12 months to 25 Nov 2012

The most common causes of total loss comprising 81% of losses over this period are Foundering (49%), Wrecking/Stranding (22%) and Fire/Explosion (10%).



Source: Lloyd's List Intelligence Casualty Statistics. Analysis: AGCS.

2012 in Review

The high profile loss of the luxury cruise ship Costa Concordia was a focal point of the maritime safety calendar in 2012. The accident spurred a number of initiatives, guidelines and recommendations designed to foster greater safety in shipping. However, aside from the impetus given by this event, the shipping industry was already focusing on a number of safety improvements, some of which moved forward significantly during the course of last year.

Continuous improvement

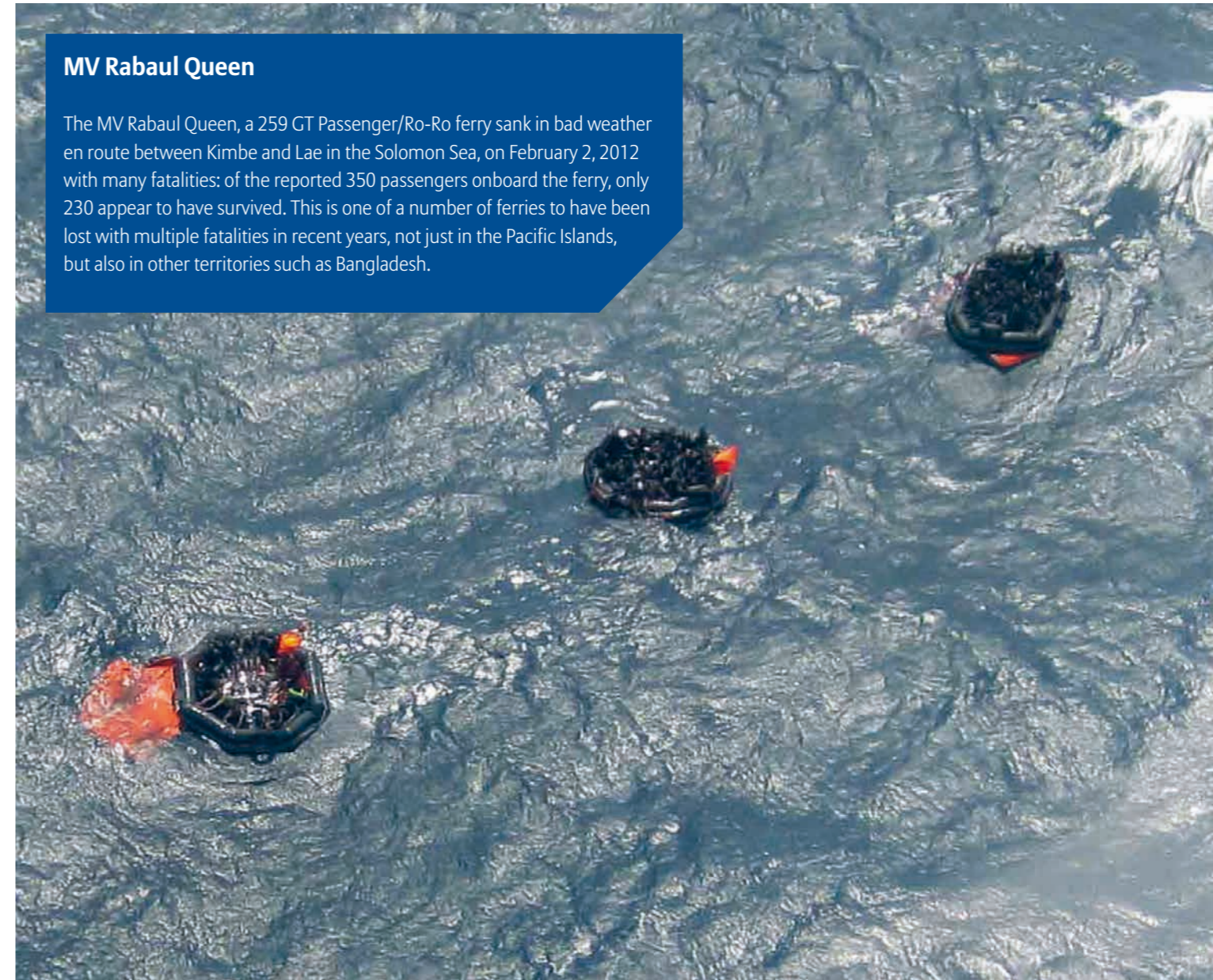
As the international body that sets regulations for the shipping industry, the International Maritime Organisation meets regularly throughout the year to examine safety related topics. At a grass roots level, the central IMO convention concerning safety at sea is the International Convention for the Safety of Life at Sea (SOLAS). There are regular amendments to this convention to help it remain relevant to modern day shipping. One of the most recent additions to SOLAS is the incorporation of the International Code for the Application of Fire Test Procedures (2010 FTP Code), which became mandatory from 1 July 2012. The amendment is designed to enhance the fire safety provisions onboard all ships. Other amendments to SOLAS that came into force in 2012 include a requirement to undertake annual testing of automatic identification systems; an improvement to safety aspects of pilot transfer; and amendments in safety certificates relating to alternative design and arrangementsⁱ.

In 2012, the IMO also reacted to concerns about the safety of domestic ferries in the Pacific Island Countries and Territories (PICTs). Predicated by a number of losses of domestic ferries worldwide, including that of the MV Rabaul Queen in February 2012, the IMO launched an action plan last year to apply a more holistic approach to domestic ferry safetyⁱⁱ. An IMO-organized Pacific Forum that took place in November 2012 focused on a number of broad issues related to domestic ferry operation including safety programs; vessel-specific concerns; legislative, regulatory and compliance matters; seafarer training and certification; operational issues; search and rescue; and safety awareness activities. Current and emerging domestic ferry safety issues were discussed, as well as concerns and trends from international, regional and national perspectives. The goal was to identify outcomes that can be put into practice by national Maritime Administrations and the maritime industry, resulting in safer ferry operations throughout the region.

The mandatory carriage of ECDIS, starting in phases from 2012, is a significant step towards improving navigational safety, but still brings its own challenges.

MV Rabaul Queen

The MV Rabaul Queen, a 259 GT Passenger/Ro-Ro ferry sank in bad weather en route between Kimbe and Lae in the Solomon Sea, on February 2, 2012 with many fatalities: of the reported 350 passengers onboard the ferry, only 230 appear to have survived. This is one of a number of ferries to have been lost with multiple fatalities in recent years, not just in the Pacific Islands, but also in other territories such as Bangladesh.



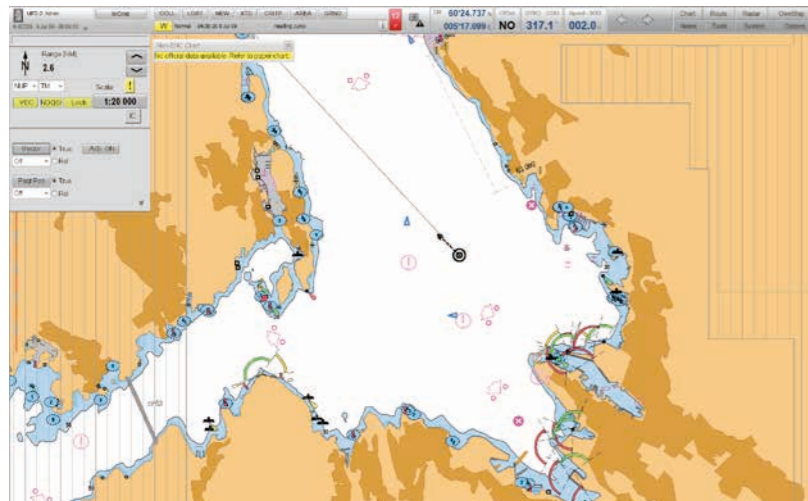
Losses such as that of Rabaul Queen have focused attention on ferry safety. (Photo:PA.)

Tracking safety

In terms of the progression of technology and how the industry responds to this, the introduction and increasingly widespread use of Vessel Tracking Systems (VTS) has added to the improved safety record of the industry. For example, since the introduction in 2003 of advanced VTS in the Strait of Istanbul, the Strait of Çanakkale, and the Marmara Sea, there has been no major accident. An accident-free decade prompted the IMO Secretary-General Koji Sekimizu to propose the launch of an initiative in which ports, harbors, straits and sea areas with VTS count, and publicize the number of consecutive accident-free daysⁱⁱⁱ. The aim of the initiative, dubbed 'Accident Zero', is to provide a solid framework for working together, and to encourage contribution towards the common objective of continuous accident free days. It is hoped that this 'ownership' of safety records will be self-propagating, leading to further safety improvements.

Display training

Another technological advancement, Electronic Chart Display and Information Systems (ECDIS) have given seafarers greatly improved visual displays for navigation, which has helped to improve safety levels. ECDIS carriage is mandatory on a rolling timetable from July 2012. The legislation will be phased by ship type and size to apply eventually to almost all large merchant and passenger vessels. Taking this technology a step further, ECDIS providers have agreed to publish information on the latest versions of software used to operate their equipment^{iv}. The move will help clarify anomalies that have been identified with some older systems. The information will be posted on the website of the International Hydrographic Organization (IHO), and will include links to enable ships to download the latest versions of the operating software, if necessary. This action is the result of a joint industry workshop, where the IMO, the IHO and 18 original equipment manufacturers met to find a solution to actively alert seafarers to the publication of new charts.



ECDIS Display

Photo: Kongsberg Maritime

There have also been industry initiatives to improve safety. The Nautical Institute-coordinated ECDIS Training Group issued 'Industry Recommendations for ECDIS Familiarisation' last year (2012) to promote clarity around generic training and familiarization regarding ECDIS. The guidance recommends that companies should establish clear guidance for the use of ECDIS within their Safety Management System procedures. It has also produced a Familiarization Checklist that details tasks that officers of the watch using ECDIS should be able to demonstrate competency in. To complement these recommendations, the Nautical Institute publishes a range of best practice guides for navigation including 'From Paper Charts to ECDIS', 'ECDIS and Positioning', and 'Radar and AIS'.

Labor commitment

Regardless of technological advancements and increasing automation, the human element of shipping is still vitally important. Some ship-owners are proactively addressing this factor by carrying out 'risk tolerance analyses' whereby they focus on analyzing the behavioral risk of the onboard management team. This approach tries to minimize momentary errors of judgment, by better understanding drivers of decision making and behavior in

maritime operations – which may explain how otherwise inexplicable human errors can creep in to even the most experienced and qualified master's decisions.

With human error often cited as the cause of many maritime accidents, the root cause of those incidents of human error can be insightful. Fatigue frequently tops the list of issues facing seafarers on today's leviathans. This has not gone unnoticed and last year marked the ratification of the Maritime Labour Convention, 2006 (MLC). An overarching convention combining a wide range of existing codes affecting the people side of maritime safety, the MLC Convention is a bold step towards addressing the root causes of human error. With entry into force set for later this year, the MLC Convention is referred to as the 'fourth pillar' of maritime regulation, sitting alongside the IMO's SOLAS, the International Convention for the Prevention of Pollution from Ships (MARPOL) and the International Convention for the Training, Certification and Watchkeeping of Seafarers (STCW). The MLC Convention covers conditions of employment, hours of work and rest, accommodation, recreational facilities, food and catering, health protection, medical care, welfare and social security protection.

London-based Captain Rahul Khanna, Senior Risk Consultant – Marine at AGCS, believes that the introduction of the MLC 2006 will help improve safety. "The human factor is the cause of most accidents at sea. The MLC Convention, which addresses the welfare and well being of seafarers, should definitely help in improving that and have a positive impact on safety."

Learning lessons

In addition to the safety initiatives detailed above, the IMO and industry has also drawn safety-related improvements over the past year from discussions centered on the Costa Concordia accident. The IMO itself was galvanized into action in the immediate aftermath of the incident. Shortly after the grounding, Secretary-General Koji Sekimizu announced that 'Passenger Ship Safety' would be added to the agenda of the IMO's

Maritime Safety Committee, which met for its 90th session in May 2012. A number of recommended interim measures aimed at enhancing the safety of passenger ships were subsequently agreed. A resolution, passed at the MSC meeting, invited Member States to recommend that passenger ship companies conduct a review of operational safety measures to ships flying their flag, on a voluntary basis and 'with all possible urgency and efficiency', taking into consideration the recommended interim operational measures. These include:

- "carrying additional lifejackets, to be readily accessible in public spaces, at the muster/assembly stations, on deck or in lifeboats, so that in the event of an emergency passengers need not return to their cabins to retrieve the lifejacket stored there;
- reviewing the adequacy of the dissemination and communication of the emergency instructions on board ships;
- carrying out the muster for embarking passengers prior to departure from every port of embarkation, if the duration is 24 hours or more;
- limiting access to the bridge to those with operational or operationally related functions, during any period of restricted maneuvering, or while maneuvering in conditions that the master or company bridge procedures/policy deems to require increased vigilance (e.g. arrival/departure from port, heavy traffic, poor visibility); and
- ensuring that the ship's voyage plan has taken into account IMO's Guidelines for voyage planning, and, if appropriate, Guidelines on voyage planning for passenger ships operating in remote areas."^v

The IMO's MSC also agreed an action plan on long-term work for passenger ship safety, pending a review of the report of the investigation into the loss of the Costa Concordia. Further, at the same meeting the MSC approved, for adoption at the next MSC meeting, a new draft SOLAS regulation requiring ships to have plans and procedures to recover persons from the water, as well as related guidelines for the development of the same.

The IMO Secretary-General also opened a "channel of communication" with passenger ship operators through the Cruise Lines International Association (CLIA) in the immediate aftermath of the accident.^{vi}

A subsequent IMO MSC meeting in November 2012 agreed a further three interim operational measures, these being:

- the Nationality of Passengers policy, which prescribes that the nationality of each passenger onboard is to be recorded and made readily available to search and rescue personnel as appropriate;
- the Common Elements of Musters and Emergency Instructions policy, where member cruise lines have specified 12 common elements that will be communicated to passengers in musters and emergency instructions. Among those common elements are a description of key safety systems and features and an explanation of emergency routing systems and recognizing emergency exits^{vii}; and
- the Life Boat Loading for Training Purposes policy, which requires the launching and full loading of a lifeboat at least once every six months for crew training purposes for all oceangoing members of the CLIA and the European Cruise Council (ECC).^{viii}

Committee members at the same meeting agreed to make mandatory the passenger muster recommendations discussed at the May 2012 meeting. Draft amendments to chapter III (Life-saving appliances and arrangements) of SOLAS to require musters of newly embarked passengers prior to or immediately upon departure - instead of "within 24 hours", as stated in the current regulations - were circulated for consideration, with a view to adoption at the next session, MSC 92, in June 2013. If agreed, they could enter into force at the end of 2014.^{ix}

"The human factor is the cause of most accidents at sea."

Captain Rahul Khanna
Senior Risk Consultant - Marine, AGCS.



Passenger safety
Several safety initiatives addressing concerns on passenger vessel safety were triggered by events in 2012.



Divers and firefighters work on the grounded Costa Concordia in January 2012. (Photo by Corpo Nazionale dei Vigili del Fuoco via Getty Images)

Operational review

These measures were in part prompted by the CLIA who, following on from the Costa Concordia disaster, initiated an Operational Safety Review, in partnership with the European Cruise Council. To date, the review has led to industry-wide voluntary adoption of ten policies that go beyond international regulatory requirements. The Review itself is guided by a third-party panel of experts who provide an impartial assessment of the recommendations developed.

After the MSC meetings and the publication of interim measures, the ECC/CLIA Operational Safety Review released three further new safety policies:

- the Location of Lifejacket Stowage policy, under which lifejackets equal to or greater than the number required by international regulations and the ship's flag State are to be stowed in close proximity to either muster stations or lifeboat embarkation points on newly-constructed ships;

- the Securing Heavy Objects policy, which directs that oceangoing member lines of CLIA and the ECC have procedures in their Safety Management Systems to secure heavy objects either permanently when not in use, or during severe weather; and
- the Harmonization of Bridge Procedures policy, which helps to enhance operational safety within CLIA and ECC oceangoing member lines by achieving consistency in operating procedures within individual companies and among brands within a commonly owned and operated fleet.^x

The US Coast Guard has also put in place procedures to ensure robust passenger safety plans for cruise ships in its waters. A regime to witness passenger musters is now part of its mandatory vessel examination program.^{xi}

When Costa Crociere's luxury cruise ship *Costa Concordia* hit rocks off the western coast of Italy on January 13, 2012, it was the start of a tragedy that was to lead to the loss of at least 30 lives.

The event was accentuated by the 100 year anniversary of the sinking of the *Titanic*. In the 100 years since the *Titanic's* sinking much has changed in shipping. The industry itself has become heavily regulated, with little left to chance with regards to safety. Unlike the *Titanic*, *Costa Concordia* had excellent communications equipment, high standards of training and a wide range of navigation-supporting technology on board.

A deviation from its course took the 290 meter cruise ship into shallow waters where it struck an underwater rock with a charted depth of 7.3 meters^{xii}. The impact tore a 50 meter hole on the port side of the ship's hull, which allowed ingress of water to parts of the engine room where the generators were housed. The flooding led to a loss of power, which hampered the ship's propulsion, causing the ship to drift to Giglio Island where she grounded just 500 meters off the shoreline.

The order to abandon ship was given by Captain Francesco Schettino. However, the evacuation took longer than allowed by international regulations and, tragically, not all of those aboard the cruise ship made it to the safety of shore.

A total of 3,229 passengers and 1,023 crew were aboard the *Costa Concordia* - 30 bodies were found after the incident, two more passengers were missing as of October 2012 and presumed dead, and 64 others were injured.

Costa Concordia was one of the largest cruise ships ever to have been built, but it will be remembered as the largest passenger ship to have sunk. Costa Crociere parent company Carnival Corporation deemed the ship a constructive total loss with a reported insurance recoverable of US\$515million^{xiii}.

Name:	Costa Concordia
Operator:	Costa Crociere, subsidiary of Carnival Corporation
Builder:	Fincantieri, Italy
Classification Society:	RINA
GT:	114,137
Year of build:	2006
Build cost:	US\$569 million
Length:	290.2 meters
Beam:	35.50 meters
Draught:	8.20 meters



Photo: VANILLA FIRE / Shutterstock.com

The cruise ship industry has responded actively with new safety policies as a result of the Costa Concordia accident.

In the pipeline

Safety challenges remain despite significant progress made in 2012

The industry is well served by safety-related regulations, but with tighter operating budgets in light of the global economic downturn there are concerns that cuts to maintenance and training funding will impact safety. Compounding the problem, the difficult operating environment has also led to low freight rates for some operators, sometimes below break even. "For some commercial ship-owners, especially in the hard-pressed bulk cargo and tanker sectors, there is little money for maintenance and little money for training," says Hamburg-based Dr. Sven Gerhard, AGCS's Global Product Leader: Hull & Marine Liabilities. "This shortage of money and funds might cause or contribute to machinery loss or collision." This is a growing safety concern for the industry in the short to medium term.

Check and balance

However, budgets under pressure have not deterred parts of the industry from undertaking critical reviews of operations and demonstrating a keenness to self-regulate. Since 2010, a number of cruise ship operators have moved away from the traditional 'master and pilot' bridge-manning structure to a 'function-based' bridge. Under this model, the 'one captain' command structure has been replaced by the 'check and balance' approach already used in the airline industry.

Dr. Gerhard says: "This is very interesting because it moves away from the traditional seafaring structure where the captain's orders pass unchallenged. It is more interesting because it was not forced by regulations, but by self-regulation. We see self-regulation of the industry as one of the core drivers of safety." He believes that this concept could soon trickle down to other sectors, especially those in hazardous environments, or where passenger safety or corporate reputation is paramount.



"We see self-regulation of the industry as one of the core drivers of safety."

Dr. Sven Gerhard
Global Product Leader:
Hull & Marine Liabilities, AGCS

Training first

On the technological side, while the benefits of ECDIS are many – for example it allows proper route monitoring, allows remote access, and allows an update on charts on the spot, among other things – there remain a number of reported difficulties in introducing ECDIS onboard, centered around a lack of training and a lack of experience.



Dr. Gerhard says: "ECDIS is great, providing that the people using these systems are trained. However, we see that people are introducing ECDIS on the technical side, but not on the people side. It's like driving a car: you can have a fantastic BMW, but if you don't have a license the car is of little use. Technically, ECDIS is one step ahead and a good development, but people are not prepared due to a lack of training." Capt Khanna agrees: "Officers on board have training for ECDIS but that training is not harmonized; there are different standards of training on ECDIS in different parts of the world depending on types and models." In this respect, Capt Khanna adds that the IMO's recent publication of ECDIS training guidance should be viewed as a positive step forward.

Aside from training concerns, Capt Khanna also raises the issue of integration. While ECDIS has been available for many years, its place on the integrated bridge is still in a state of flux. "There is a lot of work still to be done on ECDIS to seamlessly integrate this technology to its maximum utilisation on a modern navigational bridge and to make it fit into an 'Integrated Bridge System'," he says.

Beyond the baseline

Proactive safety management continues to be encouraged by insurers with rewards for those that look beyond regulatory requirements. Says Tim Donney, Global Head of Marine Risk Engineering for Allianz Risk Consulting (ARC) in New York: "The message we try to give is that companies should be proactive. Yes there are regulatory requirements, yes there are safety requirements, but for us it is not enough to talk about safety and loss control programs, be compliant with US Coast Guard programs and to maintain certification under the ISM Code.

"What we are looking for is what they proactively do as a company beyond that. Companies should look at the regulations as the baseline: that is what's required to be in business, but companies need to demonstrate what they are doing proactively to improve safety and performance," Mr Donney adds. To this end, the IMO's International Safety Management Code (ISM Code) if properly implemented can support companies that take safety improvements seriously.

Taking charge

One part of the ISM Code that is increasing in importance is the concept of a Designated Person (DP). Under the ISM Code, companies must designate as the DP an individual onshore who has access to the highest levels of management within the company. This is usually a senior port captain, or a safety director. All crew members should be properly briefed to know who that individual is and have the ability to contact them 24 hours a day. "The reason that this exists is if they see an unsafe practice or something that concerns them and they don't feel comfortable challenging the captain – which is difficult to do – they can contact the DP and explain their concerns," says Mr Donney. This issue was highlighted by the Costa Concordia incident where reports stated that one of the officers of the watch was uncomfortable with the maneuver that the captain planned to perform, but felt uneasy in challenging the captain. "Companies should emphasize the 'Designated Person' concept; it's a powerful tool," he adds.

Environmental gains

Outside influences are also playing a role in shipping safety improvements. Like many other industries, shipping is under pressure to improve its environmental performance. The mandatory Energy Efficiency Design Index and Ship Energy Efficiency Management Plan are just two examples of initiatives that have been introduced to monitor and manage emissions from the sector. While the green gains from these projects are clear, these environmental developments could also aid safety improvements. "These will have a lot of impact on how we operate ships, but will also raise safety levels onboard ships and the general awareness of safety within the crew," says Capt Khanna. "You encourage higher levels of safety when you direct your crew to do something that is over and above the mandatory requirements and not directly related to day to day cargo operations or personal safety."

Safety paramount

The shipping industry remains committed to safety and continues to put in place measures to protect the public, the environment, ships and seafarers from the unpredictability of the sea. While some measures are prompted by incidents, many more are being proactively considered to keep the global annual trade of 8.4 billion tons of cargo^{xiv} moving safely. While the IMO considers safety in shipping as one of its key focal points, the industry has also demonstrated – through self-regulation and industry-led initiatives – that it too takes safety seriously. This two-prong approach ensures that safety assumptions are constantly challenged and demonstrates a real commitment to improving safety going forward.



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Data & sources

The primary data source for total loss statistics is Lloyd's List Intelligence Casualty Statistics (data run 14 December 2012). Data is based on actual total losses or constructive total losses recorded for vessels of 100 gross tons or over (excluding for example pleasure craft and smaller vessels) as at the time of analysis. Some losses may be unreported at this time, and as a result, losses (especially for the most recent period) can be expected to increase as late loss reports are made. As a result, this report does not provide a comprehensive analysis of all maritime accidents, due to the large number of minor incidents which do not result in a 'total loss' and to some accidents which may not be reported in this database.

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